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METEOROLOGICAL DATA REPORT

NIKE-HYDAC STV (SR-044)  
(1 December 1966)

BY

GORDON L. DUNAWAY

ATMOSPHERIC SCIENCES LABORATORY  
WHITE SANDS MISSILE RANGE, NEW MEXICO

ECOM

UNITED STATES ARMY ELECTRONICS COMMAND

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**METEOROLOGICAL DATA REPORT**

**NIKE-HYDAC BTV (SE-044)  
(1 December 1966)**

**By**

**Gordon L. Dunaway**

**DR-141**

**January 1967**

**DA Task IV650212A127-02**

**ATMOSPHERIC SCIENCES LABORATORY  
WHITE SANDS MISSILE RANGE, NEW MEXICO**

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#### ABSTRACT

Meteorological data gathered for the launching of Nike-Hydac STV (SR-044) are presented for the Ballistics Systems Division, U. S. Air Force, Avco Corporation and for ballistic studies. The data appear, along with calculated ballistic data, in tabular form.

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## INTRODUCTION

Nike-Hydac STV (SR-044) was launched from Launch Complex-33, L-314, White Sands Missile Range (WSMR), New Mexico, at 0823 hours MST, 1 December 1966.

Meteorological data used in conjunction with theoretical calculations to predict rocket impact were collected by the Meteorological Support Division, Atmospheric Sciences Laboratory (ASL), WSMR, New Mexico. The Ballistics Meteorologist for this firing was Gordon L. Dunaway assisted by SFC Lee Allen.

## DISCUSSION

Wind data for the first 216 feet above the surface were obtained from a system composed of 5 Aerovanes mounted on a 200-foot tower and cabled to 5 component wind indicators.

From 216 to 4,000 feet above the surface, wind data were obtained from double-theodolite-observed balloon ascents.

Temperature, pressure, and humidity data, along with upper wind data from 4,000 to 77,500 feet above the surface, were obtained from standard rawinsonde observations.

Mean wind component values in each ballistic zone were determined from vertical cross sections by the equal-area method.

Theoretical rocket performance values and ballistic factors as a function of altitude were provided by ASL, and are the basis for data appearing in Table VIII.

PAYLOAD		233.0	Pounds
CORIOLOS DISPLACEMENT	WEST	4.6	Miles
SECOND-STAGE IGNITION	TIME	20.0	Seconds
	ALTITUDE	36,691	Feet MSL
PEAK	TIME	232.0	Seconds
	ALTITUDE	693,948	Feet MSL
UNIT WIND EFFECT	HEAD	2.3815	Miles/MPH
	CROSS	2.4678	Miles/MPH
	TAIL	2.3815	Miles/MPH
TOWER TILT EFFECT		13.83	Miles/Degree

TABLE I. THEORETICAL ROCKET PERFORMANCE VALUES  
NIKE-HYDAC STV (SR-044)

LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS
11- 60	.1440
60- 108	.0966
108- 148	.0629
148- 184	.0502
184- 216	.0286
216- 300	.0724
300- 400	.0553
400- 600	.0752
600- 800	.0557
800-1000	.0400

LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS
1000- 1400	.0555
1400- 2000	.0575
2000- 2500	.0288
2500- 3000	.0195
3000- 3500	.0112
3500- 4000	.0073
4000- 4253	.0012
4253- 9000	-.0135
9000-15000	-.0147
15000-21000	-.0166

LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS
21000-26000	-.0102
26000-32691	-.0110
32691-34000	.0430
34000-36000	.0411
36000-41000	.0543
41000-46000	.0239
46000-51000	.0124
51000-56000	.0092
56000-61000	.0060
61000-66000	.0040
66000-74168	.0020

TABLE II. BALLISTIC FACTORS  
NIKE-HYDAC STV (SR-044)

AERO-VANE NO. *	MEAN WIND COMPONENTS IN KNOTS PER HOUR											
	1		2		3		4		5		6	
	0545 MST		0615 MST		0652 MST		0704 MST		0715 MST		0725 MST	
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
1	0.0	1.0N	0.0	0.0	0.0	0.0	4.0N	1.0E	3.5N	0.5E	4.0N	1.0E
2	0.0	0.0	1.0N	2.0E	0.0	0.0	1.0	0.0	3.5	0.0	5.5	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.5E	2.0	0.0	4.5	0.0
4	1.0E	1.0E	1.0N	0.0	0.0	0.0	2.5	0.0	2.0	0.0	2.5	0.0
5	2.0	2.0	0.0	0.0	0.0	0.0	3.0	0.5W	1.5	0.5W	1.0	0.0

AERO-VANE NO. *	MEAN WIND COMPONENTS IN KNOTS PER HOUR											
	7		8		9		10		11			
	0735 MST		0745 MST		0800 MST		0810 MST		0823 MST			
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
1	2.0N	1.0E	1.0N	1.0E	0.0	0.0	0.0	0.0	0.0	0.0		
2	6.5	0.0	5.0	0.0	2.0N	1.0W	1.0N	0.0	0.0	0.0		
3	5.0	0.0	4.0	0.0	1.0	0.5E	2.0	0.5E	0.0	0.0		
4	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
5	0.5	0.5W	0.5	0.5W	1.0N	0.0	1.0N	0.0	1.0N	0.0		

TABLE III. AEROSOL WIND SPEED AND DIRECTION  
NIKE-HYDAC STV (SR-044)

\* Heights corresponding to Aerovane Numbers: 1 = 35 Feet 2 = 126 Feet 3 = 200 Feet  
4 = 88 Feet 5 = 168 Feet

LAYERS IN FEET ABOVE GROUND	MEAN WIND COMPONENTS IN MILES PER HOUR													
	1		2		3		4		5		6		7	
	0545 MST		0615 MST		0652 MST		0704 MST		0715 MST		0725 MST		0745 MST	
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
216- 300	1.5E	1.5E	2.5E	0.5W	3.5E	0.0	1.0N	1.0W	0.0	0.5W	0.0	0.0	0.5E	0.5W
300- 400	6.5	0.0	4.5	1.0	5.0	0.0	1.5E	1.0	2.0E	0.0	1.5E	0.0	1.5	0.5
400- 600	9.0	2.5W	6.0	1.5	6.5	0.5E	4.0	1.0	5.0	0.5E	4.5	0.5E	4.5	1.0
600- 800	11.5	3.5	8.5	1.0	9.5	1.5W	5.5	1.5	8.5	1.5W	8.5	0.0	8.0	1.0
800-1000	12.5	4.0	9.5	7.5	11.5	3.5	9.5	2.5	11.5	5.5	11.5	1.5W	9.5	1.5
1000-1400	7.5	3.0	10.5	10.0	8.5	4.5	12.5	3.5	9.0	3.0	9.5	2.0	8.5	1.5
1400-2000	3.0	1.5	9.0	6.5	3.5	3.0	11.0	3.0	4.0	1.0	3.5	1.5	4.5	2.0
2000-2500	0.0	5.5	5.0	4.5	2.0	1.5	4.0	1.5	2.5	1.5	1.5	1.0E	1.0	1.0
2500-3000	0.5N	6.0	1.5	1.0	1.5	5.5	2.0	0.5	3.0	4.0	3.0	2.0W	2.5	1.5
3000-3500	3.5E	7.0	0.5	4.5	2.0	4.5	2.5	3.5	6.0	5.0	4.5	9.0	5.5	1.0
3500-4000	1.5	9.0	2.5	6.5	2.0	9.5	4.0	4.5	6.5	6.5	5.0	7.0	6.5	1.5

TABLE IV. PILOT-BALLOON-MEASURED WIND DATA  
NINE-HYDAU RTV (SR-044)

LAYERS IN FEET ABOVE GROUND	MEAN WIND COMPONENTS IN MILES PER HOUR									
	8		9		10		11		MST	
	0745 MST		0800 MST		0810 MST		0825 MST			
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
216- 300	0.0	0.5W	2.0S	0.0	1.0N	0.0	0.0	0.0		
300- 400	0.5S	0.0	5.5	0.0	1.0S	0.5W	2.5S	0.5E		
400- 600	2.0	1.0E	8.5	1.5W	4.0	1.0	6.5	1.0		
600- 800	6.0	0.5W	10.5	3.5	5.5	1.0	5.5	0.0		
800-1000	9.5	2.5	7.5	2.5	6.0	1.0	11.5	1.5W		
1000-1400	9.0	2.5	7.5	0.5	3.5	3.5	8.5	2.5		
1400-2000	3.0	0.5E	7.5	1.0E	2.0	0.5	2.0	1.5		
2000-2500	1.5	0.5	1.0	3.0W	1.0	3.0	1.0	0.0		
2500-3000	3.5	3.0W	2.5	7.0	1.5	9.5	0.0	4.5W		
3000-3500	6.0	7.5	4.0	8.0	2.0	9.0	0.5S	7.0		
3500-4000	3.0	9.0	4.0	8.5	2.0	9.5	3.0	11.0		

TABLE IV. PILOT-BALLOON-MEASURED WIND DATA (Cont)  
NIKE-HYDAC STV (SR-044)

LAYERS IN FEET ABOVE GROUND	MEAN WIND COMPONENTS IN KNOTS					
	1		2		N-S	E-W
	0445 MST		0800 MST			
	N-S	E-W	N-S	E-W	N-S	E-W
4000- 4253	2.0S	11.3W	3.9S	12.6W		
4253- 9000	0.3N	15.2	1.9N	17.7		
9000-15000	2.2	17.8	4.6	20.1		
15000-21000	6.5	22.6	5.5	23.9		
21000-26000	6.1	28.8	6.1	31.4		
26000-32691	8.9	33.2	12.7	31.4		
32691-34000	13.6	32.1	15.8	28.4		
34000-36000	13.1	29.3	13.2	32.7		
36000-41000	8.4	33.6	8.8	32.9		
41000-46000	13.5	31.8	8.7	30.2		
46000-51000	14.4	31.0	10.2	33.3		
51000-56000	13.9	25.1	13.5	25.6		
56000-61000	13.6	11.8	14.9	12.9		
61000-66000	12.7	6.2	13.2	6.7		
66000-74168	5.5	0.5	9.1	2.3		

TABLE V. RAWINSONDE-MEASURED WIND DATA  
NIKE-HYDAG STV (SR-044)



STATION ALTITUDE 3989.0 FEET MSL  
1 DEC. 66 0445 HRS MST  
ASCENSION NO. 949

UPPER AIR DATA  
0649003902  
WHITH SANDS SITE  
TABLE VI (Cont)

WSTM SITE COORDINATES  
E 488,580 FEET  
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS	DIRECTION DEGREES(TN)	SPEED KNOTS	
18500.0	508.8	-9.4	-31.6	14.7	672.0	632.5	282.7	282.7	19.4	1.000152
19000.0	498.7	-10.7	-32.3	15.0	661.8	630.9	282.9	282.9	19.9	1.000150
19500.0	488.7	-11.9	-33.1	15.4	651.7	629.4	283.2	283.2	20.1	1.000147
20000.0	479.0	-13.2	-33.9	15.8	641.8	627.9	283.7	283.7	20.4	1.000145
20500.0	469.4	-14.5	-34.7	16.2	632.1	626.3	284.7	284.7	21.0	1.000143
21000.0	460.1	-15.7	-35.6	16.6	622.6	624.8	286.2	286.2	21.6	1.000140
21500.0	450.9	-17.0	-36.4	17.0	613.2	623.2	288.4	288.4	22.1	1.000138
22000.0	441.9	-18.3	-37.2	17.3	604.0	621.7	289.7	289.7	22.8	1.000136
22500.0	433.1	-19.6	-38.1	17.7	594.9	620.1	289.2	289.2	23.8	1.000134
23000.0	424.4	-20.8	-39.0	18.1	586.0	618.6	288.7	288.7	24.8	1.000132
23500.0	416.0	-22.1	-39.8	18.5	577.2	617.0	288.1	288.1	25.8	1.000130
24000.0	407.7	-23.4	-40.7	18.9	568.5	615.5	287.3	287.3	26.8	1.000128
24500.0	399.5	-24.6	-41.6	19.2	560.1	613.9	286.0	286.0	27.8	1.000126
25000.0	391.6	-25.9	-42.5	19.6	551.7	612.3	285.0	285.0	28.7	1.000124
25500.0	383.8	-27.2	-43.4	20.0	543.5	610.7	284.3	284.3	29.5	1.000122
26000.0	376.1	-28.4	-44.3	20.4	535.4	609.1	283.5	283.5	30.3	1.000120
26500.0	368.6	-29.7	-45.3	20.8	527.5	607.6	282.0	282.0	30.8	1.000118
27000.0	361.1	-31.0	-45.8	22.0	519.5	605.9	280.5	280.5	31.0	1.000116
27500.0	353.4	-32.4	-46.0	24.8	511.2	604.2	279.1	279.1	30.2	1.000115
28000.0	345.8	-33.7	-46.2	27.6	503.1	602.6	278.4	278.4	29.6	1.000113
28500.0	338.4	-35.0	-46.2	31.6	495.0	600.9	279.5	279.5	29.2	1.000111
29000.0	331.0	-36.2	-45.9	36.8	486.8	599.4	280.8	280.8	28.7	1.000109
29500.0	323.8	-37.5	-45.8	42.1	478.7	597.8	282.3	282.3	27.9	1.000107
30000.0	316.8	-38.7	-45.9	47.3	470.8	596.2	284.0	284.0	28.0	1.000106
30500.0	309.9	-39.9	-46.7	49.3	462.9	594.6	285.9	285.9	29.3	1.000104
31000.0	303.0	-41.2	-48.6	45.6	455.2	593.0	286.2	286.2	30.4	1.000102
31500.0	296.3	-42.6	-50.0	44.6	447.8	591.3	285.5	285.5	31.3	1.000100
32000.0	289.7	-44.0	-51.8	41.9**	440.3	589.5	284.2	284.2	32.5	1.000098
32500.0	283.1	-45.3	-54.4	35.8**	432.8	587.8	283.1	283.1	33.9	1.000097
33000.0	276.6	-46.6	-57.1	29.8**	425.4	586.1	282.7	282.7	34.9	1.000095

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL  
1 DEC. 66 0445 HRS MST  
ASCENSION NO. 949

UPPER AIR DATA  
0649003902  
WHITE SANDS SITE  
TABLE VI (Cont)

STATION SITE COORDINATES  
E 489,580 FEET  
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	DIRECTION DEGREES (TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
33500.0	270.3	-47.9	-60.0	23.7**	418.2	584.4	282.7	35.7	1.000093
34000.0	264.2	-49.2	-63.4	17.7**	411.1	582.6	283.3	36.7	1.000092
34500.0	258.1	-50.6	-67.6	11.6**	404.1	580.9	284.3	37.9	1.000090
35000.0	252.3	-51.9	-73.7	5.5**	397.2	579.2	285.9	38.3	1.000088
35500.0	246.5	-53.2	0.	-0.	390.4	577.5	287.9	38.2	1.000087
36000.0	240.6	-54.0	0.	-0.	382.6	576.4	289.6	37.8	1.000085
36500.0	235.0	-54.8	0.	-0.	375.0	575.3	291.1	36.9	1.000084
37000.0	229.4	-55.7	0.	-0.	367.5	574.2	292.6	35.7	1.000082
37500.0	224.0	-56.5	0.	-0.	360.1	573.1	294.3	34.1	1.000080
38000.0	218.7	-57.3	0.	-0.	353.0	572.0	295.6	32.8	1.000079
38500.0	213.5	-58.1	0.	-0.	345.9	571.0	296.8	31.8	1.000077
39000.0	208.4	-59.0	0.	-0.	339.1	569.8	295.6	31.7	1.000076
39500.0	203.5	-59.8	0.	-0.	332.3	568.7	293.3	31.9	1.000074
40000.0	198.7	-60.5	0.	-0.	325.5	567.8	290.8	32.5	1.000072
40500.0	193.9	-60.8	0.	-0.	318.1	567.4	288.3	33.1	1.000071
41000.0	189.2	-61.1	0.	-0.	310.9	567.0	285.7	33.7	1.000069
41500.0	184.6	-61.4	0.	-0.	303.8	566.6	283.1	34.3	1.000068
42000.0	180.2	-61.6	0.	-0.	296.8	566.3	282.2	34.9	1.000066
42500.0	175.8	-61.2	0.	-0.	289.1	566.8	281.3	35.5	1.000064
43000.0	171.6	-60.8	0.	-0.	281.6	567.4	281.8	34.8	1.000063
43500.0	167.4	-60.4	0.	-0.	274.3	567.9	282.3	34.2	1.000061
44000.0	163.4	-61.2	0.	-0.	268.6	566.8	283.3	35.4	1.000060
44500.0	159.4	-62.2	0.	-0.	263.2	565.5	284.4	36.3	1.000059
45000.0	155.5	-63.1	0.	-0.	258.0	564.3	285.9	35.9	1.000057
45500.0	151.7	-64.1	0.	-0.	252.8	563.0	287.5	35.7	1.000056
46000.0	148.0	-65.0	0.	-0.	247.8	561.7	289.1	36.1	1.000055
46500.0	144.4	-66.0	0.	-0.	242.9	560.4	290.8	36.1	1.000054
47000.0	140.8	-66.6	0.	-0.	237.5	559.6	293.0	35.0	1.000053
47500.0	137.2	-67.2	0.	-0.	232.2	558.7	295.0	33.9	1.000052
48000.0	133.8	-67.8	0.	-0.	227.0	557.9	296.3	32.9	1.000051

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL  
 1 DEC. 66 0445 HRS MST  
 ASCENSION NO. 949

UPPER AIR DATA  
 0649003902  
 WHITE SANDS SITE  
 TABLE VI (Cont)

WSTM SITE COORDINATES  
 E 488,580 FEET  
 N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS	DIRECTION DEGREES(TN)	SPEED KNOTS	
48500.0	130.4	-68.4	0.	-0. **	221.9	557.1		297.4	32.2	1.000049
49000.0	127.1	-69.0	0.	-0. **	217.0	556.3		297.3	33.2	1.000048
49500.0	123.9	-69.6	0.	-0. **	212.2	555.5		297.3	34.3	1.000047
50000.0	120.8	-70.2	0.	-0. **	207.4	554.7		297.2	35.5	1.000046
50500.0	117.8	-70.8	0.	-0. **	202.8	553.8		297.2	36.7	1.000045
51000.0	114.8	-71.4	0.	-0. **	198.3	553.0		297.2	37.6	1.000044
51500.0	111.9	-72.0	0.	-0. **	193.9	552.2		297.2	38.4	1.000043
52000.0	109.1	-72.6	0.	-0. **	189.6	551.4		296.7	37.3	1.000042
52500.0	106.3	-73.2	0.	-0. **	185.3	550.5		296.0	35.3	1.000041
53000.0	103.7	-73.8	0.	-0. **	181.2	549.7		294.8	33.5	1.000040
53500.0	101.0	-73.0	0.	-0. **	175.8	550.9		293.0	31.6	1.000039
54000.0	98.5	-72.0	0.	-0. **	170.5	552.3		291.6	30.4	1.000038
54500.0	95.9	-72.3	0.	-0. **	166.4	551.9		290.5	29.9	1.000037
55000.0	93.5	-72.6	0.	-0. **	162.4	551.4		290.1	29.0	1.000036
55500.0	91.1	-72.9	0.	-0. **	158.6	551.0		292.0	31.0	1.000035
56000.0	88.8	-73.2	0.	-0. **	154.7	550.6		293.9	32.2	1.000034
56500.0	86.6	-72.8	0.	-0. **	150.6	551.1		295.5	32.0	1.000034
57000.0	84.4	-72.5	0.	-0. **	146.6	551.5		297.1	31.8	1.000033
57500.0	82.3	-72.2	0.	-0. **	142.6	552.0		298.6	30.6	1.000032
58000.0	80.2	-71.9	0.	-0. **	138.8	552.4		300.2	29.2	1.000031
58500.0	78.2	-71.5	0.	-0. **	135.1	552.9		302.5	27.3	1.000030
59000.0	76.2	-71.2	0.	-0. **	131.5	553.3		305.2	25.3	1.000029
59500.0	74.3	-70.9	0.	-0. **	128.0	553.8		307.2	23.7	1.000029
60000.0	72.4	-70.5	0.	-0. **	124.6	554.2		308.8	22.3	1.000028
60500.0	70.6	-70.2	0.	-0. **	121.3	554.7		310.1	21.4	1.000027
61000.0	68.9	-69.9	0.	-0. **	118.0	555.1		311.0	20.8	1.000026
61500.0	67.1	-69.6	0.	-0. **	114.9	555.6		312.5	20.0	1.000026
62000.0	65.4	-69.2	0.	-0. **	111.8	556.0		314.9	18.7	1.000025
62500.0	63.8	-68.9	0.	-0. **	108.8	556.5		317.6	17.4	1.000024
63000.0	62.2	-68.6	0.	-0. **	105.9	556.9		323.4	16.0	1.000024

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL  
 1 DEC. 66 0445 HRS MST  
 ASCENSION NO. 949

UPPER AIR DATA  
 0649003902  
 WHITE SANDS SITE  
 TABLE VI (Cont)

WSTM SITE COORDINATES  
 E 486,580 FEET  
 N 185,043 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
63500.0	60.6	-68.2	-0.0	103.1	557.4	329.2	14.5	1.000023
64000.0	59.1	-67.9	-0.0	100.3	557.8	329.4	15.1	1.000022
64500.0	57.6	-67.6	-0.0	97.7	558.3	328.6	16.0	1.000022
65000.0	56.2	-67.3	-0.0	95.0	558.7	328.0	16.3	1.000021
65500.0	54.8	-66.9	-0.0	92.5	559.2	327.6	15.9	1.000021
66000.0	53.4	-66.6	-0.0	90.0	559.6	326.6	15.8	1.000020
66500.0	52.1	-66.2	-0.0	87.7	560.2	324.0	16.3	1.000020
67000.0	50.8	-65.7	-0.0	85.3	560.9	321.4	16.7	1.000019
67500.0	49.6	-65.2	-0.0	83.1	561.5	328.2	15.7	1.000018
68000.0	48.4	-64.7	-0.0	80.9	562.2	336.2	14.6	1.000018
68500.0	47.2	-64.2	-0.0	78.8	562.8	341.5	13.1	1.000018
69000.0	46.1	-63.8	-0.0	76.7	563.4	343.8	11.4	1.000017
69500.0	45.0	-63.3	-0.0	74.7	564.1	346.5	9.8	1.000017
70000.0	43.9	-62.8	-0.0	72.7	564.7	353.4	9.3	1.000016
70500.0	42.8	-62.3	-0.0	70.8	565.4	0.3	8.8	1.000016
71000.0	41.8	-61.8	-0.0	68.9	566.0	2.9	7.5	1.000015
71500.0	40.8	-61.4	-0.0	67.1	566.7	3.7	5.8	1.000015
72000.0	39.8	-60.9	-0.0	65.3	567.3	11.1	4.8	1.000015
72500.0	38.8	-60.4	-0.0	63.6	567.9	29.7	5.0	1.000014
73000.0	37.9	-59.9	-0.0	61.9	568.6	46.3	5.1	1.000014
73500.0	37.0	-59.4	-0.0	60.3	569.2	12.6	3.5	1.000013
74000.0	36.1	-59.0	-0.0	58.7	569.9	338.9	1.9	1.000013
74500.0	35.2	-58.5	-0.0	57.2	570.5	333.0	1.7	1.000013
75000.0	34.4	-58.0	-0.0	55.7	571.1	338.2	2.1	1.000012
75500.0	33.6	-57.5	-0.0	54.2	571.8	339.0	3.0	1.000012
76000.0	32.7	-57.0	-0.0	52.8	572.4	332.8	4.6	1.000012
76500.0	32.0	-56.6	-0.0	51.4	573.0	326.7	6.2	1.000011
77000.0	31.2	-56.4	-0.0	50.2	573.2	338.9	7.2	1.000011
77500.0	30.5	-56.2	-0.0	48.9	573.5	352.0	8.1	1.000011
78000.0	29.8	-56.1	-0.0	47.8	573.7	1.5	9.1	1.000011

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL

1 DEC. 66

ASCENSION NO. 949

UPPER AIR DATA

0649003902

WHITE SANDS SITE

TABLE VI (Cont)

WSTM SITE COORDINATES

E 488,580 FEET

N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
78500.0	29.1	-55.9	0.	46.6	573.9	2.8	10.1	1.000010
79000.0	28.4	-55.7	0.	45.5	574.2	4.2	11.1	1.000010
79500.0	27.7	-55.5	0.	44.4	574.4	1.8	11.6	1.000010
80000.0	27.1	-55.3	0.	43.3	574.6	356.3	11.8	1.000010
80500.0	26.4	-55.2	0.	42.3	574.9	350.8	11.9	1.000009
81000.0	25.8	-55.0	0.	41.2	575.1	354.6	12.4	1.000009
81500.0	25.2	-54.8	0.	40.2	575.3	0.9	12.9	1.000009
82000.0	24.6	-54.6	0.	39.3	575.6	6.9	13.4	1.000009
82500.0	24.0	-54.5	0.	38.3	575.8	5.1	12.8	1.000009
83000.0	23.5	-54.3	0.	37.4	576.0	3.4	12.3	1.000008
83500.0	22.9	-54.1	0.	36.5	576.3	4.9	12.1	1.000008
84000.0	22.4	-53.9	0.	35.6	576.5	14.6	12.9	1.000008
84500.0	21.9	-53.7	0.	34.7	576.8	24.3	13.7	1.000008
85000.0	21.4	-53.5	0.	33.9	577.1	29.5	13.6	1.000008
85500.0	20.9	-53.2	0.	33.1	577.4	30.2	12.6	1.000007
86000.0	20.4	-53.0	0.	32.3	577.8	31.0	11.7	1.000007
86500.0	20.0	-52.7	0.	31.5	578.1	33.0	11.3	1.000007
87000.0	19.5	-52.5	0.	30.8	578.4	36.0	11.5	1.000007
87500.0	19.1	-52.2	0.	30.0	578.8	39.0	11.6	1.000007
88000.0	18.6	-52.0	0.	29.3	579.1	38.5	11.5	1.000007
88500.0	18.2	-51.7	0.	28.6	579.4	32.8	11.1	1.000006
89000.0	17.8	-51.4	0.	27.9	579.8	27.2	10.7	1.000006
89500.0	17.4	-51.2	0.	27.3	580.1	21.6	10.3	1.000006
90000.0	17.0	-50.9	0.	26.6	580.4	16.4	11.3	1.000006
90500.0	16.6	-50.7	0.	26.0	580.8	11.3	12.4	1.000006
91000.0	16.2	-50.4	0.	25.4	581.1	6.2	13.5	1.000006
91500.0	15.9	-50.2	0.	24.8	581.4	7.9	15.0	1.000006
92000.0	15.5	-49.9	0.	24.2	581.8	13.4	16.6	1.000005
92500.0	15.1	-49.7	0.	23.6	582.1	18.8	18.3	1.000005
93000.0	14.8	-49.4	0.	23.0	582.4	23.9	20.1	1.000005

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL  
1 DEC. 66 0445 HRS MST  
ASCENSION NO. 949

UPPER AIR DATA  
0649003902  
WHITE SANDS SITE  
TABLE VI (Cont)

WSTA SITE COORDINATES  
E 488.580 FEET  
N 185.045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
93500.0	14.5	-49.2	-0. **	22.5	582.9	27.8	22.1	1.000003
94000.0	14.1	-48.9	-0. **	22.0	583.1	31.6	24.1	1.000005
94500.0	13.8	-48.6	-0. **	21.4	583.4	35.5	26.1	1.000005
95000.0	13.5	-48.4	-0. **	20.9	583.8	38.0	27.1	1.000005
95500.0	13.2	-48.1	-0. **	20.4	584.1	40.2	27.9	1.000005
96000.0	12.9	-47.9	-0. **	19.9	584.4	42.5	28.7	1.000004
96500.0	12.6	-47.6	-0. **	19.5	584.8	43.9	28.8	1.000004
97000.0	12.3	-47.4	-0. **	19.0	585.1	44.4	28.2	1.000004
97500.0	12.0	-47.1	-0. **	18.5	585.4	44.9	27.6	1.000004
98000.0	11.8	-46.9	-0. **	18.1	585.7	45.2	27.0	1.000004
98500.0	11.5	-46.6	-0. **	17.7	586.1	44.2	26.2	1.000004
99000.0	11.2	-46.3	-0. **	17.2	586.4	43.2	25.5	1.000004
99500.0	11.0	-46.1	-0. **	16.8	586.7	42.1	24.7	1.000004
100000.0	10.7	-45.8	-0. **	16.4	587.1	43.1	24.8	1.000004
100500.0	10.5	-45.6	-0. **	16.0	587.4	44.6	25.2	1.000004
101000.0	10.2	-45.3	-0. **	15.7	587.7	46.2	25.6	1.000003
101500.0	10.0	-45.1	-0. **	15.3	588.0	47.0	25.8	1.000003
102000.0	9.8	-44.8	-0. **	14.9	588.4	46.7	25.7	1.000003
102500.0	9.6	-44.6	-0. **	14.6	588.7	46.4	25.6	1.000003
103000.0	9.3	-44.3	-0. **	14.2	589.0	46.2	25.5	1.000003
103500.0	9.1	-44.1	-0. **	13.9	589.4	49.1	25.3	1.000003
104000.0	8.9	-44.0	-0. **	13.6	589.4	52.0	25.2	1.000003
104500.0	8.7	-44.4	-0. **	13.3	588.9	55.0	25.0	1.000003
105000.0	8.5	-44.7	-0. **	13.0	588.5	58.7	24.9	1.000003
105500.0	8.3	-45.1	-0. **	12.7	588.1	62.9	24.8	1.000003
106000.0	8.1	-45.4	-0. **	12.5	587.6	67.1	24.8	1.000003
106500.0	8.0	-45.7	-0. **	12.2	587.2	67.7	24.1	1.000003
107000.0	7.8	-46.1	-0. **	11.9	586.7	65.0	22.8	1.000003
107500.0	7.6	-46.4	-0. **	11.7	586.3			1.000003
108000.0	7.4	-46.8	-0. **	11.5	585.9			1.000003

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL  
 1 DEC. 66 0445 HRS MST  
 ASCENSION NO. 949

UPPER AIR DATA  
 0649003902  
 WHITE SANDS SITE  
 TABLE VI (Cont)

WSTM SITE COORDINATES  
 E 488,580 FEET  
 N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE				DIRECTION DEGREES(TN)	SPEED KNOTS	
108500.0	7.3	-47.1	0.	-0. **	11.2	585.4			1.000002
109000.0	7.1	-47.5	0.	-0. **	11.0	585.0			1.000002

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL  
1 DEC. 66 0800 HRS MST  
ASCENSION NO. 950

UPPER AIR DATA  
0655003905  
WHIYE SANDS SITE  
TABLE VII

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
3989.0	882.8	3.1	57.0	1111.3	647.8	0.	0.	1.000269
4000.0	882.4	3.1	56.7	1110.8	647.8	359.2	0.0	1.000269
4500.0	866.1	5.3	47.3	1081.6	650.4	323.3	0.9	1.000262
5000.0	850.2	8.3	45.5	1050.3	653.9	287.3	1.7	1.000258
5500.0	834.7	8.9	43.5	1028.9	654.7	251.4	2.6	1.000253
6000.0	819.5	9.5	41.5	1007.8	655.4	215.4	3.5	1.000248
6500.0	804.6	9.8	39.4	988.6	655.7	210.2	4.4	1.000243
7000.0	789.8	8.8	36.7	974.2	654.4	236.6	5.3	1.000237
7500.0	775.4	7.7	34.1	960.1	653.2	246.4	8.0	1.000231
8000.0	761.2	6.7	31.5	946.1	651.9	251.6	11.4	1.000226
8500.0	747.2	5.7	28.8	932.4	650.7	258.0	14.0	1.000221
9000.0	733.5	5.6	26.7	915.7	650.5	265.1	15.9	1.000216
9500.0	720.0	5.8	24.7	898.1	650.8	270.1	17.3	1.000211
10000.0	706.7	6.1	22.8	880.7	651.1	273.3	18.0	1.000207
10500.0	693.7	6.4	20.8	863.7	651.4	277.7	18.5	1.000202
11000.0	680.9	6.6	18.9	847.1	651.6	283.1	18.5	1.000198
11500.0	668.4	6.9	17.0	830.9	651.9	285.2	18.4	1.000193
12000.0	655.9	5.8	17.1	818.5	650.6	283.7	18.3	1.000190
12500.0	643.7	4.8	17.3	806.3	649.4	282.9	18.6	1.000187
13000.0	631.7	3.7	17.4	794.3	648.2	282.7	19.2	1.000184
13500.0	620.0	2.7	17.5	782.5	646.9	282.3	19.7	1.000181
14000.0	608.4	1.6	17.6	770.8	645.7	281.9	20.1	1.000178
14500.0	597.1	0.6	17.8	759.4	644.5	283.1	20.2	1.000175
15000.0	585.9	-0.4	17.9	748.1	643.2	284.4	20.4	1.000172
15500.0	574.9	-1.5	18.0	737.0	641.9	285.2	20.5	1.000169
16000.0	563.7	-2.8	18.0	726.1	640.4	285.6	20.5	1.000166
16500.0	552.8	-4.1	18.0	715.3	638.9	285.5	20.3	1.000164
17000.0	542.0	-5.3	18.0	704.7	637.4	284.4	20.4	1.000161
17500.0	531.5	-6.6	18.0	694.3	635.9	282.4	21.1	1.000158
18000.0	521.2	-7.8	18.0	684.1	634.4	281.0	21.2	1.000156

STATION ALTITUDE 3989.0 FEET MSL  
1 DEC. 66 0800 HRS MST  
ASCENSION NO. 950

UPPER AIR DATA  
0655003905  
WHITE SANDS SITE  
TABLE VII (Cont)

WSTM SITE COORDINATES  
E 488,580 FEET  
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS			
18500.0	511.1	-9.1	-29.1	18.0	674.0	632.9	280.0	280.0	21.0	1.000153
19000.0	501.1	-10.3	-30.2	18.0	664.1	631.4	278.9	278.9	21.0	1.000151
19500.0	491.4	-11.6	-31.2	18.0	654.3	629.9	277.8	277.8	21.1	1.000148
20000.0	481.9	-12.8	-32.3	18.0	644.7	628.3	278.6	278.6	21.2	1.000146
20500.0	472.5	-14.1	-33.3	18.0	635.3	626.8	280.4	280.4	21.3	1.000144
21000.0	463.3	-15.3	-34.4	18.0	626.0	625.3	281.7	281.7	22.1	1.000141
21500.0	454.0	-16.6	-35.4	18.1	616.5	623.7	282.9	282.9	22.9	1.000139
22000.0	444.7	-17.9	-36.5	18.2	607.0	622.1	284.9	284.9	23.8	1.000137
22500.0	435.6	-19.2	-37.5	18.3	597.6	620.5	287.1	287.1	24.7	1.000135
23000.0	426.7	-20.5	-38.6	18.4	588.4	618.9	287.1	287.1	25.7	1.000132
23500.0	418.0	-21.8	-39.6	18.5	579.4	617.3	286.8	286.8	26.8	1.000130
24000.0	409.5	-23.1	-40.7	18.6	570.5	615.7	286.2	286.2	28.1	1.000128
24500.0	401.1	-24.4	-41.7	18.7	561.8	614.1	285.6	285.6	29.5	1.000126
25000.0	392.9	-25.7	-42.8	18.8	553.2	612.5	285.7	285.7	30.8	1.000124
25500.0	384.9	-27.0	-43.8	18.9	544.8	610.9	281.6	281.6	32.0	1.000122
26000.0	376.9	-28.3	-44.4	20.0	536.3	609.3	280.8	280.8	32.6	1.000120
26500.0	368.9	-29.6	-43.9	23.9	527.7	607.7	280.1	280.1	33.2	1.000118
27000.0	361.1	-30.9	-43.6	27.7	519.3	606.1	279.3	279.3	32.6	1.000116
27500.0	353.5	-32.2	-43.6	31.6	511.0	604.5	279.2	279.2	32.2	1.000115
28000.0	346.0	-33.4	-43.7	35.5	502.8	602.9	279.8	279.8	31.6	1.000113
28500.0	338.5	-34.7	-44.0	35.7	494.6	601.3	280.0	280.0	31.6	1.000111
29000.0	331.2	-36.0	-46.0	35.3	486.4	599.7	279.7	279.7	31.7	1.000109
29500.0	324.0	-37.3	-47.3	34.9	478.4	598.1	279.6	279.6	32.1	1.000107
30000.0	316.9	-38.5	-48.6	34.5	470.6	596.5	279.7	279.7	32.7	1.000105
30500.0	310.1	-39.8	-49.8	34.1	462.9	594.8	280.6	280.6	33.3	1.000104
31000.0	303.1	-40.9	-51.9	30.2**	454.8	593.4	281.6	281.6	33.9	1.000102
31500.0	296.4	-42.1	-54.2	25.8**	446.8	591.9	284.3	284.3	33.2	1.000100
32000.0	289.7	-43.2	-56.7	21.3**	438.9	590.5	287.2	287.2	32.4	1.000098
32500.0	283.2	-44.3	-59.5	16.8**	431.2	589.1	290.1	290.1	32.9	1.000096
33000.0	276.9	-45.4	-62.8	12.4**	423.6	587.6	293.0	293.0	33.5	1.000094

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE HAS BEEN USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL  
1 DEC. 66 0800 HRS MST  
ASCENSION NO. 950

UPPER AIR DATA  
0655003905  
WHITE SANDS SITE  
TABLE VII (Cont)

WSTM SITE COORDINATES  
E 488,580 FEET  
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS	DIRECTION DEGREES(TN)	SPEED KNOTS	
33500.0	270.7	-46.5	-67.0	7.9**	416.1	586.2		296.4	34.1	1.000093
34000.0	264.6	-47.6	-73.5	3.5**	408.8	584.7		299.8	34.6	1.000091
34500.0	258.6	-48.7	0.	-0. **	401.6	583.3		300.8	35.2	1.000089
35000.0	252.6	-49.8	0.	-0. **	394.1	581.9		301.3	35.7	1.000088
35500.0	246.7	-50.9	0.	-0. **	386.8	580.5		301.8	35.4	1.000086
36000.0	240.9	-52.0	0.	-0. **	379.6	579.0		302.2	34.8	1.000085
36500.0	235.3	-53.1	0.	-0. **	372.6	577.6		301.2	33.5	1.000083
37000.0	229.8	-54.2	0.	-0. **	365.7	576.2		299.5	31.8	1.000081
37500.0	224.4	-55.3	0.	-0. **	358.9	574.7		297.6	32.0	1.000080
38000.0	219.2	-56.4	0.	-0. **	352.3	573.3		295.6	32.5	1.000078
38500.0	214.1	-57.5	0.	-0. **	345.8	571.9		293.4	34.3	1.000077
39000.0	209.1	-58.5	0.	-0. **	339.4	570.4		291.4	36.1	1.000076
39500.0	204.1	-59.4	0.	-0. **	332.7	569.3		290.4	36.6	1.000074
40000.0	199.2	-60.0	0.	-0. **	325.6	568.5		289.5	37.2	1.000073
40500.0	194.4	-60.6	0.	-0. **	318.7	567.6		288.9	36.4	1.000071
41000.0	189.7	-61.3	0.	-0. **	312.0	566.8		288.3	35.7	1.000069
41500.0	185.2	-61.4	0.	-0. **	304.6	566.7		287.7	34.1	1.000068
42000.0	180.7	-61.1	0.	-0. **	297.0	567.0		287.1	32.3	1.000066
42500.0	176.4	-60.9	0.	-0. **	289.5	567.3		285.6	32.4	1.000064
43000.0	172.1	-60.7	0.	-0. **	282.2	567.6		283.8	33.1	1.000063
43500.0	168.0	-60.4	0.	-0. **	275.1	567.9		282.3	33.4	1.000061
44000.0	163.9	-60.2	0.	-0. **	268.2	568.2		281.3	33.1	1.000060
44500.0	159.9	-60.5	0.	-0. **	262.0	567.8		280.7	33.2	1.000058
45000.0	156.0	-61.3	0.	-0. **	256.5	566.8		280.7	33.5	1.000057
45500.0	152.1	-62.1	0.	-0. **	251.1	565.7		281.3	33.7	1.000056
46000.0	148.4	-62.8	0.	-0. **	245.8	564.7		283.2	33.6	1.000055
46500.0	144.7	-63.6	0.	-0. **	240.7	563.6		285.1	33.5	1.000054
47000.0	141.2	-64.4	0.	-0. **	235.6	562.6		286.6	33.9	1.000052
47500.0	137.7	-65.2	0.	-0. **	230.7	561.5		288.0	34.3	1.000051
48000.0	134.3	-66.0	0.	-0. **	225.8	560.5		288.2	33.2	1.000050

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL  
1 DEC. 66 0800 HRS MST  
ASCENSION NO. 950

UPPER AIR DATA  
0655003905  
WHITE SANDS SITE  
TABLE VII (Cont)

WSTM SITE COORDINATES  
E 488,580 FEET  
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS			
48500.0	131.0	-66.7	0.	-0. **	221.1	559.4	288.3	288.3	32.1	1.000049
49000.0	127.8	-67.5	0.	-0. **	216.5	558.4	288.0	288.0	31.8	1.000048
49500.0	124.6	-68.3	0.	-0. **	211.9	557.3	287.5	287.5	31.7	1.000047
50000.0	121.6	-69.1	0.	-0. **	207.5	556.3	287.0	287.0	32.4	1.000046
50500.0	118.6	-69.8	0.	-0. **	203.2	555.2	286.4	286.4	33.6	1.000045
51000.0	115.6	-70.6	0.	-0. **	198.9	554.1	286.1	286.1	35.0	1.000044
51500.0	112.7	-70.9	0.	-0. **	194.2	553.8	286.1	286.1	36.6	1.000043
52000.0	109.9	-71.0	0.	-0. **	189.4	553.6	285.8	285.8	37.2	1.000042
52500.0	107.1	-71.1	0.	-0. **	184.7	553.5	285.2	285.2	37.0	1.000041
53000.0	104.4	-71.2	0.	-0. **	180.1	553.3	286.0	286.0	36.5	1.000040
53500.0	101.7	-71.3	0.	-0. **	175.6	553.1	287.9	287.9	35.6	1.000039
54000.0	99.1	-71.5	0.	-0. **	171.3	553.0	289.0	289.0	34.7	1.000038
54500.0	96.6	-71.6	0.	-0. **	167.0	552.8	289.1	289.1	33.8	1.000037
55000.0	94.2	-71.7	0.	-0. **	162.9	552.7	289.5	289.5	33.2	1.000036
55500.0	91.8	-71.8	0.	-0. **	158.8	552.5	290.2	290.2	33.3	1.000035
56000.0	89.5	-71.9	0.	-0. **	154.9	552.4	291.0	291.0	33.3	1.000034
56500.0	87.2	-72.0	0.	-0. **	151.1	552.2	292.5	292.5	33.5	1.000034
57000.0	85.0	-72.1	0.	-0. **	147.3	552.1	294.0	294.0	33.6	1.000033
57500.0	82.8	-72.3	0.	-0. **	143.7	551.9	295.2	295.2	32.3	1.000032
58000.0	80.8	-71.9	0.	-0. **	139.8	552.3	296.4	296.4	30.9	1.000031
58500.0	78.7	-71.4	0.	-0. **	135.9	553.1	298.3	298.3	29.7	1.000030
59000.0	76.8	-70.8	0.	-0. **	132.1	553.9	300.6	300.6	28.5	1.000029
59500.0	74.8	-70.2	0.	-0. **	128.5	554.7	302.4	302.4	26.9	1.000029
60000.0	73.0	-69.6	0.	-0. **	124.9	555.6	303.3	303.3	24.8	1.000028
60500.0	71.1	-69.0	0.	-0. **	121.4	556.4	305.1	305.1	22.8	1.000027
61000.0	69.4	-68.4	0.	-0. **	118.0	557.2	310.6	310.6	21.4	1.000026
61500.0	67.6	-67.8	0.	-0. **	114.7	558.0	316.0	316.0	20.0	1.000026
62000.0	65.9	-67.2	0.	-0. **	111.6	558.8	320.6	320.6	18.7	1.000025
62500.0	64.3	-66.6	0.	-0. **	108.5	559.6	325.0	325.0	17.4	1.000024
63000.0	62.7	-66.1	0.	-0. **	105.4	560.4	327.7	327.7	16.7	1.000023

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL  
1 DEC. 66 0800 HRS MST  
ASCENSION NO. 950

UPPER AIR DATA  
0655003905  
WHITE SANDS SITE  
TABLE VII (Cont)

WSTM SITE COORDINATES  
E 488,580 FEET  
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
63500.0	61.1	-65.8	-0. **	102.7	560.7	330.3	15.9	1.000023
64000.0	59.6	-65.9	-0. **	100.2	560.6	327.7	17.2	1.000022
64500.0	58.1	-65.9	-0. **	97.8	560.5	323.7	18.8	1.000022
65000.0	56.7	-66.0	-0. **	95.4	560.5	321.8	19.7	1.000021
65500.0	55.3	-66.0	-0. **	93.0	560.4	323.0	19.3	1.000021
66000.0	54.0	-66.1	-0. **	90.8	560.3	324.1	18.8	1.000020
66500.0	52.6	-65.9	-0. **	88.5	560.6	323.5	17.9	1.000020
67000.0	51.3	-65.2	-0. **	86.0	561.5	322.9	17.0	1.000019
67500.0	50.1	-64.5	-0. **	83.7	562.4	327.6	15.6	1.000019
68000.0	48.9	-63.8	-0. **	81.4	563.4	337.8	13.8	1.000018
68500.0	47.7	-63.1	-0. **	79.1	564.3	347.9	12.0	1.000018
69000.0	46.5	-62.4	-0. **	76.9	565.2	346.8	10.8	1.000017
69500.0	45.4	-61.7	-0. **	74.8	566.2	345.7	9.6	1.000017
70000.0	44.3	-61.0	-0. **	72.8	567.1	346.5	8.7	1.000016
70500.0	43.2	-60.3	-0. **	70.8	568.0	349.1	8.1	1.000016
71000.0	42.2	-60.0	-0. **	69.0	568.5	351.4	7.4	1.000015
71500.0	41.2	-59.8	-0. **	67.3	568.8	339.6	6.6	1.000015
72000.0	40.2	-59.5	-0. **	65.6	569.1	327.8	5.8	1.000015
72500.0	39.3	-59.3	-0. **	64.0	569.4	322.6	5.8	1.000014
73000.0	38.3	-59.0	-0. **	62.4	569.8	324.7	6.8	1.000014
73500.0	37.4	-58.8	-0. **	60.8	570.1	326.9	7.7	1.000014
74000.0	36.5	-58.5	-0. **	59.3	570.4	328.5	8.6	1.000013
74500.0	35.7	-58.3	-0. **	57.9	570.7	330.0	9.5	1.000013
75000.0	34.8	-58.1	-0. **	56.4	571.1	333.7	10.3	1.000013
75500.0	34.0	-57.8	-0. **	55.0	571.4	342.9	10.8	1.000012
76000.0	33.2	-57.6	-0. **	53.7	571.7	352.2	11.3	1.000012
76500.0	32.4	-57.3	-0. **	52.3	572.0	1.6	11.9	1.000012
77000.0	31.6	-57.1	-0. **	51.0	572.3	11.2	12.6	1.000011
77500.0	30.9	-56.8	-0. **	49.8	572.7	20.8	13.3	1.000011
78000.0	30.2	-56.6	-0. **	48.5	573.0	21.5	13.4	1.000011

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

WGTM SITE COORDINATES  
E 400,580 FEET  
N 105,045 FEET

UPPER AIR DATA  
0655003905  
WHITE SANDS SITE  
TABLE VII (Cont)

STATION ALTITUDE 3989.0 FEET MSL  
1 DEC. 66 0800 HRS MST  
ASCENSION NO. 950

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOWS	KNOWS			
78500.0	29.4	-56.4	0.	-0. **	47.3	573.3		20.5	13.4	1.000011
79000.0	28.7	-56.1	0.	-0. **	46.2	573.6		19.3	13.3	1.000010
79500.0	28.1	-55.9	0.	-0. **	45.0	574.0		17.6	12.3	1.000010
80000.0	27.4	-55.6	0.	-0. **	43.9	574.3		15.8	11.3	1.000010
80500.0	26.8	-55.4	0.	-0. **	42.8	574.6		16.7	10.5	1.000010
81000.0	26.1	-55.1	0.	-0. **	41.7	574.9		21.8	10.1	1.000009
81500.0	25.5	-54.7	0.	-0. **	40.7	575.5		26.9	9.8	1.000009
82000.0	24.9	-54.3	0.	-0. **	39.7	576.1		27.7	10.0	1.000009
82500.0	24.4	-53.8	0.	-0. **	38.7	576.6		25.9	10.7	1.000009
83000.0	23.8	-53.4	0.	-0. **	37.7	577.2		24.1	11.3	1.000008
83500.0	23.2	-52.9	0.	-0. **	36.8	577.8		25.7	12.0	1.000008
84000.0	22.7	-52.5	0.	-0. **	35.9	578.4		28.7	12.7	1.000008
84500.0	22.2	-52.0	0.	-0. **	35.0	579.0		31.7	13.4	1.000008
85000.0	21.7	-51.6	0.	-0. **	34.1	579.6		31.1	13.6	1.000008
85500.0	21.2	-51.1	0.	-0. **	33.2	580.2		28.8	13.5	1.000007
86000.0	20.7	-50.7	0.	-0. **	32.4	580.8		26.4	13.4	1.000007
86500.0	20.2	-50.2	0.	-0. **	31.6	581.4		27.7	13.4	1.000007
87000.0	19.8	-49.8	0.	-0. **	30.8	582.0		31.7	13.6	1.000007
87500.0	19.3	-49.3	0.	-0. **	30.0	582.6		35.7	13.7	1.000007
88000.0	18.9	-48.9	0.	-0. **	29.3	583.2		37.9	14.1	1.000007
88500.0	18.4	-48.4	0.	-0. **	28.6	583.7		38.4	14.8	1.000006
89000.0	18.0	-47.9	0.	-0. **	27.9	584.3		38.8	15.4	1.000006
89500.0	17.6	-47.5	0.	-0. **	27.2	584.9		39.3	16.2	1.000006
90000.0	17.2	-46.9	0.	-0. **	26.5	585.7		39.7	17.1	1.000006
90500.0	16.8	-46.2	0.	-0. **	25.8	586.6		40.0	18.0	1.000006
91000.0	16.4	-45.5	0.	-0. **	25.2	587.5		41.4	19.3	1.000006
91500.0	16.1	-44.8	0.	-0. **	24.5	588.3		45.4	21.4	1.000005
92000.0	15.7	-44.2	0.	-0. **	23.9	589.2		49.4	23.6	1.000005
92500.0	15.4	-43.5	0.	-0. **	23.3	590.1		53.0	25.6	1.000005
93000.0	15.0	-42.8	0.	-0. **	22.7	590.9		53.1	26.5	1.000005

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL  
 1 DEC. 66 0800 HRS MST  
 ASCENSION NO. 950

UPPER AIR DATA  
 0655003905  
 WHITE SANDS SITE  
 TABLE VII (Cont.)

WSTM SITE COORDINATES  
 E 488,580 FEET  
 N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
93500.0	14.7	-42.9	-0. **	22.2	590.8	53.2	27.4	1.000005
94000.0	14.4	-43.1	-0. **	21.7	590.6	53.3	28.3	1.000005
94500.0	14.0	-43.2	-0. **	21.3	590.4	54.4	28.9	1.000005
95000.0	13.7	-43.4	-0. **	20.8	590.3	55.6	29.4	1.000005
95500.0	13.4	-43.5	-0. **	20.4	590.1	56.8	29.9	1.000005
96000.0	13.1	-43.6	-0. **	19.9	589.9	57.1	29.3	1.000004
96500.0	12.8	-43.8	-0. **	19.5	589.7	57.1	28.1	1.000004
97000.0	12.5	-43.9	-0. **	19.1	589.5	57.0	27.0	1.000004
97500.0	12.3	-44.1	-0. **	18.7	589.3	56.9	26.2	1.000004
98000.0	12.0	-44.2	-0. **	18.2	589.2	56.6	25.7	1.000004
98500.0	11.7	-44.0	-0. **	17.8	589.5	56.4	25.2	1.000004
99000.0	11.5	-43.8	-0. **	17.4	589.7	56.1	24.7	1.000004
99500.0	11.2	-43.5	-0. **	17.0	590.0	54.7	24.7	1.000004
100000.0	11.0	-43.3	-0. **	16.6	590.3	53.3	24.6	1.000004
100500.0	10.7	-43.1	-0. **	16.2	590.6	51.9	24.5	1.000004
101000.0	10.5	-42.9	-0. **	15.9	590.9	52.4	24.0	1.000004
101500.0	10.3	-42.6	-0. **	15.5	591.2	54.3	23.1	1.000003
102000.0	10.0	-42.4	-0. **	15.1	591.5	56.3	22.2	1.000003
102500.0	9.8	-42.6	-0. **	14.8	591.2	58.2	21.3	1.000003
103000.0	9.6	-42.8	-0. **	14.5	591.0	59.8	20.1	1.000003
103500.0	9.4	-43.0	-0. **	14.2	590.7	61.4	18.8	1.000003
104000.0	9.2	-43.2	-0. **	13.9	590.4	63.1	17.6	1.000003
104500.0	9.0	-43.5	-0. **	13.6	590.1	67.1	16.4	1.000003
105000.0	8.8	-43.7	-0. **	13.3	589.9	72.7	15.2	1.000003
105500.0	8.6	-43.9	-0. **	13.0	589.6	78.3	14.0	1.000003
106000.0	8.4	-44.1	-0. **	12.7	589.3	82.6	12.9	1.000003
106500.0	8.2	-44.3	-0. **	12.5	589.0	79.9	12.6	1.000003
107000.0	8.0	-44.5	-0. **	12.2	588.8	77.1	12.3	1.000003
107500.0	7.8	-44.7	-0. **	11.9	588.5	74.4	12.0	1.000003
108000.0	7.7	-44.8	-0. **	11.7	588.4	75.1	12.0	1.000003

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL  
 1 DEC. 66 0800 HRS MST  
 ASCENSION NO. 950

UPPER AIR DATA  
 0655003905  
 WHITE SANDS SITE  
 TABLE VII (Cont)

WSTM SITE COORDINATES  
 E 488,580 FEET  
 N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
108500.0	7.5	-44.5	0.	11.4	588.7	77.5	12.1	1.000003
109000.0	7.3	-44.3	0.	11.1	589.1	79.9	12.2	1.000002
109500.0	7.2	-44.0	0.	10.9	589.5			1.000002
110000.0	7.0	-43.7	0.	10.6	589.8			1.000002
110500.0	6.8	-43.8	0.	10.4	589.7			1.000002
111000.0	6.7	-44.5	0.	10.2	588.8			1.000002
111500.0	6.5	-45.1	0.	10.0	588.0			1.000002
112000.0	6.4	-45.8	0.	9.8	587.1			1.000002

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

RELEASE TIME (MST)		SECOND-STAGE IMPACT DISPLACEMENT IN MILES DUE TO WIND										AZI- MUTH (DEG- REES)	THEORETICAL IMPACT FROM LAUNCHER (IN MILES)		
		11-216 FT		216-4000 FT		4000-74168 FT		TOTAL							
		RAWIN- SONDE	PIBAL	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W		RANGE	N-S	E-W
0445	0545	.26S	.09W	7.29S	2.73W	5.78N	12.95W	1.77S	15.77W	355.2	65.70	65.47N	5.46W		
0445	0615	.35N	.48E	7.20S	4.65W	5.78N	12.95W	1.07S	17.12W	354.1	66.52	66.17N	6.81W		
0445	0652	0.0	0.0	6.66S	2.31W	5.78N	12.95W	0.88S	15.26W	355.7	66.54	66.36N	4.95W		
0445	0704	2.40N	.40E	6.03S	2.16W	5.78N	12.95W	2.15N	14.71W	356.4	69.53	69.39N	4.40W		
0445	0715	2.65N	.14E	5.69S	1.66W	5.78N	12.95W	2.74N	14.47W	356.6	70.10	69.98N	4.16W		
0445	0725	3.68N	.36E	5.40S	.83W	5.78N	12.95W	4.06N	13.42W	357.5	71.37	71.30N	3.11W		
0445	0735	3.20N	.32E	5.23S	1.40W	5.78N	12.95W	3.75N	14.03W	357.0	71.09	70.99N	3.72W		
0445	0745	2.37N	.32E	4.20S	.97W	5.78N	12.95W	3.95N	13.60W	357.4	71.27	71.19N	3.29W		
0445	0800	.68N	.24W	7.05S	1.86W	5.78N	12.95W	0.59S	15.05W	355.9	66.82	66.65N	4.74W		
0445	0810	.60N	.08E	2.93S	2.13W	5.78N	12.95W	3.45N	15.00W	356.2	70.85	70.69N	4.69W		
0800*	0823*	.07N	0.0	4.84S	1.06W	5.42N	10.33W	0.65N	11.39W	359.1	67.90	67.89N	1.08W		

\* Post-Shoot Data

	AZIMUTH (DEG-- REES)	MILES FROM LAUNCHER			
		RANGE	N-S	E-W	
LAUNCHER SETTING (ELEVATION 85.0 DEGREES QE)	012.5	68.87	67.24N	14.91E	
NO WIND IMPACT	008.7	68.03	67.24N	10.31E	
PREDICTED SECOND-STAGE IMPACT	357.6	70.00	69.94N	2.93W	
SECOND-STAGE IMPACT, RADAR TRACK (R-128)	356.2	83.48	83.30N	5.53W	
PREDICTED BOOSTER IMPACT	018.0	1.40	1.33N	.43E	
ACTUAL BOOSTER IMPACT	N/A	N/A	N/A	N/A	

TABLE VIII. IMPACT PREDICTION DATA  
NIKE-HYDAC STV (SR-044)

UNCLASSIFIED

Security Classification

## DOCUMENT CONTROL DATA - R&amp;D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Electronics Command Ft. Monmouth, New Jersey		2a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED	
		2b. GROUP	
3. REPORT TITLE METEOROLOGICAL DATA REPORT, NIKE-HYDAC STV (SR-044)			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
5. AUTHOR(S) (Last name, first name, initial) DUNAWAY, Gordon L.			
6. REPORT DATE January 1967		7a. TOTAL NO. OF PAGES 24	7b. NO. OF REFS None
8a. CONTRACT OR GRANT NO.  A. PROJECT NO.  C. DA Task IV650212A127-02  D.		9a. ORIGINATOR'S REPORT NUMBER(S) DR-141  9b. OTHER REPORT NO(S) (Any other numbers that may be assigned to a report)	
10. AVAILABILITY/LIMITATION NOTICES Distribution of this document is unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY U. S. Army Electronics Command Atmospheric Sciences Laboratory White Sands Missile Range, New Mexico	
13. ABSTRACT  Meteorological data gathered for the launching of Nike-Hydac STV (SR-044) are presented for the Ballistics Systems Division, U. S. Air Force, Avco Corporation and for ballistic studies. The data appear, along with calculated ballistic data, in tabular form.			

DD FORM 1473  
1 JAN 64

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Security Classification

KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
1. Ballistics 2. Meteorology 3. Wind						

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